

THE INVENTION CLAIMED IS:

1. A nutritional composition for treatment of impaired or inadequate energy production or dysfunctional energy metabolism in a mammal comprising L-carnitine, acetyl-L-carnitine, pantothenate and niacinamide.
2. The composition of Claim 1, wherein said L-carnitine, acetyl-L-carnitine, pantothenate and niacinamide are present in said composition in a ratio of about 1: 0.1 – 2 : 0.01 – 0.5 : 0.01 – 0.5.
3. The nutritional composition of Claim 1, further comprising a preservative.
4. The nutritional composition of Claim 1, in an aqueous solution.
5. The nutritional composition of Claim 4, wherein the concentration of each ingredient in the aqueous solution is : L-carnitine .0005 to 500 mg/ml, acetyl-L-carnitine .0005 to 500 mg/ml, pantothenate .000005 to 10 mg/ml and niacinamide .000005 to 20 mg/ml.
6. The nutritional composition of Claim 1, in a concentrate.
7. The nutritional composition of Claim 1, in a soft drink.
8. The nutritional composition of Claim 1, in a gel cap.
9. A nutritional composition for treatment of impaired or inadequate energy production or dysfunctional energy metabolism in a mammal consisting essentially of L-carnitine, acetyl-L-carnitine, pantothenate and niacinamide.
10. A method of treating impaired or inadequate energy metabolism or dysfunctional energy metabolism in a mammal comprising administering an effective amount of a composition comprising L-carnitine, acetyl-L-carnitine, pantothenate and niacinamide to a mammal in need of such treatment.
11. The method of Claim 10, wherein said composition consists essentially of L-carnitine, acetyl-L-carnitine, pantothenate and niacinamide.

12. The method of Claim 10, wherein said composition further comprises a preservative.

13. The method of Claim 11, wherein said composition further comprises a preservative.

14. The method of Claim 10, wherein said dysfunctional energy metabolism comprises cardiomyopathy.

15. The method of Claim 10, wherein said dysfunctional energy metabolism comprises seizures.

16. The method of Claim 10, wherein said administration is oral.

17. The method of Claim 10, wherein said administration is parenteral.

18. The method of Claim 10, wherein said effective amount is about 0.1-20 mg/kg L-carnitine, about 0.01-20 mg/kg acetyl-L-carnitine, about 0.01-1.0 mg/kg pantothenate and about 0.01-1.0 mg/kg niacinamide per day.